RECORD OF AMERICAN CARCINOLOGY FOR 1880.

BY J. S. KINGSLEY.

IN continuing the record of American crustacean literature, begun by the writer last year (NATURALIST, XIV, pp. 498–503), the principal papers will be considered under the heads, systematic, anatomical and embryological, and in these by authors in alphabetical order. A complete list of papers, so far as known to the recorder, completes the record.

Descriptive papers have this year been few and are of apparently a better character than is frequently the case, a goodly proportion being monographic in character. Messrs. Harger, Kingsley, Packard and Smith are the only writers who have described new species during the year. Mr. Harger (4) presents a valuable synopsis of all the marine Isopoda of the New England coast, with full synonyma and good illustrative figures. He begins with a general account of the external anatomy of the Isopoda; next comes the systematic portion, by which we find that New England possesses 46 species arranged under 34 genera and 14 families. One new genus and species is described, *Syscenus infelix*, and of this but a single specimen is known. Possibly its solitary condition and consequent lonesomeness prompted the specific name. Following the systematic portion we find a résumé of the geographical and bathymetrical distribution, from which we learn that 11 species are found only south of Cape Cod, 19 exist only north of that barrier, while 16 are common to both sides of the cape, and 11 species are common to both Europe and America. A very complete bibliography concludes the article, enumerating over two hundred titles. We notice, however, that the excellent articles of Schiodte and Meinert[1] are nowhere mentioned. With our marine Isopods in this excellent condition, we wish that Mr. Harger or some other equally competent naturalist would undertake to straighten out the terrestrial forms, on which, with the exception of work by Say, Fitch, Dana and Stuxberg, but little has been done.

Mr. Kingsley has been the largest contributor to systematic carcinology, but this is hardly the place for a critical review of his work. His first paper (7), though issued in the Proceedings of the Philadelphia Academy for 1879, was not printed until the

[1] See NATURALIST, XIV, p. 519, 1880.

beginning of 1880, and hence falls within the scope of this record. It gives an account of the Crustacea collected by Professor H. E. Webster of Union College, in Virginia, North Carolina and Florida, together with a revision of the genera of shrimps. This paper has been noticed by Professor Smith (29). It may be well to say that the genus *Xiphocaris*, which in the article is merged with *Caulurus*, really is distinct, and belongs to the Atyidæ, near *Caradina*, as an examination of the mandibles has shown.

The four remaining papers to be noticed treat of the grapsoid Crustacea. The first (14) is on the Thelphusidæ, describing some new forms and giving notes on the habitats of others. The next (15) is a revision of the fiddler crabs of the world, in which the known species are reduced to forty-one. A further examination of types ard more complete series would probably reduce the number still further. Two new species are described. The Ocypodæ are next treated in the same manner (16), 11 species (1 new) being recognized. The last of the series (17) takes up the family Grapsidæ, giving descriptions and analytical keys to the majority of the forms. The nominal species of *Sesarma* are merely enumerated in alphabetical order, the task of simplifying and straightening them out being too much for the writer. Several genera and many species are thrown into synonymy, and the geographical distribution of many is greatly extended. Two new genera and species are characterized, and, including the Sesarmæ, 159 species are enumerated.

Professor Packard, who has in progress a monograph of the North American Phyllopoda, describes (19) *Streptocephalus floridanus* as new, and gives notes on other Phyllopods.

Professor Smith, our oldest publishing American carcinologist, contributes several short articles which, like all of his papers, add greatly to our knowledge of the Crustacea. In the first of these articles to be noticed (26), the presence of the destructive *Chelura terebrans*, a wood-eating Crustacean, is recorded on our shores. In the next (31) some forms of British Columbia are discussed. A single new genus and species of Cumacea, *Diastylopsis dawsoni* is described, and the notes on the other forms enumerated throw much light on our knowledge of the west coast species. In his paper on *Pinnixa* (32), to be referred to again, the New England species, two in number, are described. The next paper

(33) discusses the presence of certain tropical and subtropical forms on the New England coast. These are ten in number.

Concerning some of the Crustacea described by Thomas Say, there has been considerable uncertainty, and in the case of three genera of Amphipods, Mr. Smith (34) presents us extended descriptions of Say's forms, and settles the disputed points. The genus *Erichthonius* is considered as belonging to a distinct subfamily from *Cerapus*, with which it has been confounded.

Dr. Packard is the only one who has published anything concerning the anatomy of the Crustacea, and his articles have all been upon the eye and brain of Limulus, and are all published in the pages of the NATURALIST, and hence do not need more extended notice here. A more extended paper on Limulus,[1] though bearing date 1880, did not appear until the beginning of the present year, and will be noticed more at length elsewhere.

Dr. Brooks has published preliminary accounts of the embryology of the curious genus *Lucifer* (1 and 2). We understand that the complete history will appear in the Philosophical Transactions of the Royal Society. The most important feature discovered is that the young *Lucifer* is a Nauplius and not a Zoëa as is the case with most Decapods. This discovery adds additional probability to the statement of Fritz Müller that the young of *Peneus* is also a Nauplius.

Mr. Emerton (4) figures the nauplius of a barnacle.

Dr. Faxon (5) discusses the membrane which envelops the larva of *Carcinus mœnas* and the morphology of the zoëal antennæ; seven figures are given of the zoëa of *Panopeus sayi*, and one of the tail of zoëa of *Gelasimus pugnax*. The text is so condensed as not to admit of putting into an abstract, and students are referred to the article itself. The two folded plates accompanying the paper are very good.

Professor Smith's paper on *Pinnixa* (32) should be read in connection with that of Dr. Faxon, noticed in the review of last year.

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[1] The Anatomy, Histology and Embryology of *Limulus polyphemus*. Anniversary Memoirs of the Boston Society of Natural History, 1880, pp. 45, pls. 7.

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[States that in Lucifer, as in examples from other classes of animals, there are periods of activity and rest in the segmentation of the egg. This had previously been commented upon by several embryologists.]

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[Gives figures, original and copied, of several forms.]

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ABORIGINAL STONE-DRILLING.

BY CHARLES RAU.

ABOUT twelve years ago, I published an account of my experiments in drilling in stone without the aid of metallic tools,[1] and, though during the interval my attention was constantly fixed upon archæological matters, I had, on the whole, no occasion for changing the opinions then expressed.

In the meantime, however, similar experiments, made by European archæologists, were commented on by Mr. John Evans, who, after a due consideration of the subject of stone-drilling, gives the following summary of methods:

"On the whole, we may conclude that the holes were bored in various manners, of which the principal were—

1. By chiseling, or picking with a sharp stone.
2. By grinding with a solid grinder, probably of wood.

[1] Drilling in Stone without Metal; Smithsonian Report for 1868, p. 392–400.